WHAT IS CLAIMED IS:

1. An isolated nucleic acid encoding a tumor suppressor polypeptide p33ING2, wherein the polypeptide has greater than 70% amino acid sequence identity to a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

2. The isolated nucleic acid of claim 1, wherein the polypeptide selectively binds to polyclonal antibodies generated against a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

3. The isolated nucleic acid of claim 1, wherein the nucleic acid encodes a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

4. The isolated nucleic acid sequence of claim 1, wherein the nucleic acid comprises a nucleotide sequence of SEQ ID NO:2.

5. The isolated nucleic acid of claim 1, wherein the nucleic acid is from a human.

6. The isolated nucleic acid of claim 1, wherein the nucleic acid is amplified by primers that selectively hybridize under stringent hybridization conditions to the same sequence as degenerate primer sets encoding amino acid sequences selected from the group consisting of: SEQ ID NO:3 (MLGQQQQ) and SEQ ID NO:4 (KKDRRSR).

7. The isolated nucleic acid of claim 1, wherein the nucleic acid encodes a polypeptide having a molecular weight of about 28 kDa to about 38 kDa.

8. An isolated nucleic acid encoding a tumor suppressor polypeptide p33ING2 that specifically hybridizes under stringent conditions to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2.

9. The isolated nucleic acid of claim 1, wherein said nucleic acid selectively hybridizes under moderately stringent hybridization conditions to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2.

10. An isolated tumor suppressor polypeptide p33ING2, wherein the polypeptide has greater than 70 % amino acid sequence identity to a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

11. The isolated tumor suppressor polypeptide of claim 10, wherein the polypeptide selectively binds to polyclonal antibodies generated against a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

12. The isolated tumor suppressor polypeptide of claim 10, wherein the polypeptide comprises an amino acid sequence of SEQ ID NO:1.

13. The isolated tumor suppressor polypeptide of claim 10, wherein the polypeptide is from a human.

14. The isolated tumor suppressor polypeptide of claim 10, wherein the polypeptide is wild type p33ING2.

15. An antibody that selectively binds to a p33ING2 polypeptide comprising an amino acid sequence of SEQ ID NO:1, but does not bind to a p33ING1 polypeptide comprising an amino acid sequence of SEQ ID NO:8.

16. The antibody of claim 15, wherein the antibody is polyclonal.

17. An antibody that selectively binds to a p33ING1 polypeptide comprising an amino acid sequence of SEQ ID NO:8, but does not bind to a p33ING2 polypeptide comprising an amino acid sequence of SEQ ID NO:1.

18. The antibody of claim 17, wherein the antibody is polyclonal.

19. The antibody of claim 15, wherein the antibody selectively binds to a p33ING2 polypeptide comprising the amino acid sequence of SEQ ID NO:5, but does not bind to a p33ING1 polypeptide comprising an amino acid sequence of SEQ ID NO:8.

20. An expression vector comprising the nucleic acid of claim 1.

21. A host cell transfected with the vector of claim 20.

22. A method for identifying a compound that modulates a tumor suppressor polypeptide p33ING2, the method comprising the steps of:

(i) contacting the compound with a eukaryotic host cell or cell membrane in which has been expressed a tumor suppressor polypeptide p33ING2, wherein the polypeptide has greater than 70 % amino acid sequence identity to a polypeptide comprising an amino acid sequence of SEQ ID NO:1; and

(ii) determining the functional effect of the compound upon the cell or cell membrane expressing the polypeptide.

23. The method of claim 22, wherein the polypeptide selectively binds to polyclonal antibodies generated against a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

24. The method of claim 22, wherein functional effect is determined by measuring changes in cell growth.

25. The method of claim 22, wherein the polypeptide is recombinant.

26. The method of claim 22, wherein the polypeptide is from a human.

27. The method of claim 22, wherein the polypeptide comprises an amino acid sequence of SEQ ID NO:1.

28. The method of claim 22, wherein the cell is an HCT116 human colon cancer cell line.

29. The method of claim 22, wherein the cell has the missense p33ING2 sequence of a polypeptide comprising an amino acid sequence of SEQ ID NO:6.

30. A method of inhibiting cellular proliferation, the method comprising

transducing a cell with an expression vector, the vector comprising a nucleic acid encoding a tumor suppressor polypeptide p33ING2, wherein the polypeptide has greater than 70 % amino acid sequence identity to a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

31. The method of claim 30, wherein the polypeptide selectively binds to polyclonal antibodies generated against a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

32. The method of claim 30, wherein the nucleic acid encodes a polypeptide comprising an amino acid sequence of SEQ ID NO:1.

33. The method of claim 30, wherein the nucleic acid comprises a nucleotide sequence of SEQ ID NO:2.

34. The method of claim 30, wherein the nucleic acid is from a human.

35. The method of claim 30, wherein the nucleic acid encodes a polypeptide having a molecular weight of about 28 kDa to about 38 kDa.

36. The method of claim 30, wherein the cell is a HCT116 human colon cancer cell.

37. The method of claim 30, wherein the cell has a missense or null endogenous p33ING2 phenotype.

38. The method of claim 30, wherein the cell has a missense p33ING2 sequence of a polypeptide comprising an amino acid sequence of SEQ ID NO:6.

39. A method of detecting the presence or absence of p33ING2 in mammalian tissue, the method comprising the steps of:

(i) isolating a biological sample;

(ii) contacting the biological sample with a p33ING2-specific reagent that selectively associates with p33ING2; and

(iii) detecting the level of p33ING2-specific reagent that selectively associates with the sample.

40. The method of claim 39, wherein the p33ING2-specific reagent is selected from the group consisting of a p33ING2-specific antibody, a p33ING2-specific primer, and a p33ING2-specific nucleic acid probe.

41. The method of claim 40, wherein the p33ING2-specific nucleic acid probe binds to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:7, or to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2, or to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:10.

42. The method of claim 39, wherein the biological sample comprises intact chromosome 4q35.

43. The method of claim 39, wherein the p33ING2-specific reagent detects nucleic acid.

44. The method of claim 43, wherein the nucleic acid is a polymorphic variant of p33ING2.

45. The method of claim 43, wherein the nucleic acid is RNA.

46. The method of claim 39, wherein the p33ING2-specific reagent is an antibody that selectively binds to p33ING2.

47. The method of claim 46, wherein the antibody is polyclonal.

48. The method of claim 46, wherein the antibody selectively binds to a p33ING2 polypeptide comprising an amino acid sequence of SEQ ID NO:1, but not to a p33ING1 polypeptide comprising an amino acid sequence of SEQ ID NO:8.

49. The antibody of claim 46, wherein the antibody selectively binds to a p33ING2 polypeptide comprising an amino acid sequence of SEQ ID NO:5, but does not bind to a p33ING1 polypeptide comprising an amino acid sequence of SEQ ID NO:8.

50. A method of determining a test amount of p33ING2 in mammalian tissue, the method comprising the steps of:

(i) isolating a biological sample;

(ii) contacting the biological sample with a p33ING2-specific reagent that selectively associates with p33ING2; and

(iii) comparing the test amount to a control.

51. The method of claim 50, wherein the control is an amount of p33ING2 in a normal cell.

52. The method of claim 50, wherein the p33ING2-specific reagent is selected from the group consisting of p33ING2-specific antibody, a p33ING2-specific primer; and p33ING2-specific nucleic acid probe.

53. A method of detecting the presence or absence of p33ING1 in mammalian tissue, the method comprising the steps of:

(i) isolating a biological sample;

(ii) contacting the biological sample with a p33ING1-specific antibody that selectively binds to p33ING1 but not to p33ING2; and

(iii) detecting the level of p33ING1-specific antibody that selectively associates with the sample.

54. The method of claim 53, wherein the p33ING1-specific antibody is polyclonal.

55. A method of determining a test amount of p33ING1 in mammalian tissue, the method comprising the steps of:

(i) isolating a biological sample;

(ii) contacting the biological sample with a p33ING1-specific antibody that selectively associates with p33ING1 but not to p33ING2; and

(iii) comparing the test amount to a control.

56. The method of claim 55, wherein the control is an amount of p33ING1 in a normal cell.

57. The method of claim 55, wherein the p33ING1-specific antibody is polyclonal.